REMARKS

Claims 1 to 60 and 71 are all the claims pending in the application, prior to the present amendment.

Applicants thank the Examiner, Mr. Kumar, for courteously granting the interview of January 17, 2008. The following remarks will incorporate the substance of the interview.

Applicants have canceled product claims 47-54 in the present application, along with non-elected claims 22-46 and 55-60, leaving only method claims 1 to 21 and 71 in the present application. At the interview, the Examiner agreed that these method claims are allowable over the prior art.

Claims 1-21 and 71 have been rejected under 35 U.S.C. § 103(a) as obvious over the Muller et al article in view of U.S. Patent 6,255,522 to Matsuo et al.

Applicants submit that Muller et al and Matsuo et al do not disclose or render obvious the subject matter of the above claims and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 is directed to a process for producing an optically active α-substituted aminoketone represented by formula (4) or an optically active α-substituted aminoketone salt represented by formula (5), which has two asymmetric carbon atoms, the process comprising the steps of reacting an α-substituted ketone represented by formula (1) with an optically active amine represented by formula (2) to yield a mixture of diastereomers of an optically active α-substituted aminoketone represented by formula (3) and isolating one diastereomer from the mixture after optionally yielding salts of the diastereomers with an acid.

By employing an optically active amine as set forth in claim 1, since the obtained aminoketone forms diastereomers, one diastereomer can be easily separated from the other. Therefore, an optically pure compound can be obtained.

As set forth in dependent claim 9, the acid can be methanesulfonic acid.

The present invention as set forth in independent claim 71 is directed to a process for producing an optically active α-substituted aminoketone represented by formula (4) or an optically active α-substituted aminoketone of formula (5) by isolating one diastereomer from the mixture of diastereomers of an optically active α-substituted aminoketone represented by formula (3) after optionally yielding salts of the diastereomers with an acid.

Applicants submit that Muller et al do not disclose a process for producing an optically active α-substituted aminoketone of formula (4) or an optically active α-substituted aminoketone salt of formula (5), and do not disclose or suggest the use of an optically active amine represented by formula (2) of the present claims.

In particular, Muller et al disclose a process for the reduction of a "racemic" α-phenylalkylamino propiophenone (an aminoketone) to produce a 2-phenyl alkylamino-l-phenylpropanol (an aminoalcohol). See the title of Muller et al which specifically refers to the reduction of "racemic" α-phenylalkylamino propiophenone.

This process is illustrated broadly by equation (1) at page 450 of Muller et al where the α-phenylalkylamino propiophenone, which is a ketone, is designated with the reference numeral "1" (hereafter referred to as "compound 1"), and the 2-phenylalkylamino-l-phenylpropanol, which is an alcohol, is designated with the reference numeral "2" (hereafter "compound 2").

In the table at page 450, Muller et al disclose a number of different ketone compounds 1, among which is a compound 1b that satisfies the structure of formula (3) of the present claims,

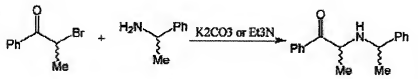
but which is not optically active. Muller et al also disclose compound 1b in the Table at page 452.

Muller et al, at page 451, lines 11 to 22, set forth a section that describes a process for producing ketone compounds 1, which Muller et al refer to as "AP-Derivatives," and at page 451, line 23+, sets forth a section that describes a process for producing the alcohol compounds 2.

Applicants now describe these sections of Muller et al which mainly include the following two reactions:

(1) Synthesis of α-phenylalkylamino propiophenone derivatives (AP-Derivatives)

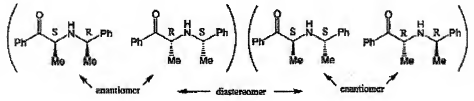
Muller et al state, at page 451, lines 11 to 22, that racemic α-bromopropiophenone is reacted with an amine compound (e.g. 1-phenylethylamine) in the presence of K_2CO_3 or triethylamine. Applicants illustrate this reaction as follow:



(racemic α-bromopropiophenone) (Compound 1)

Muller et al do not disclose the use of an optically active amine in the production of their compounds 1, and one of ordinary skill in the art would understand that Muller et al disclose the use of a racemic amine. Since Muller et al disclose the use of racemic α-bromopropiophenone and a racemic amine, the ketone compounds 1 disclosed in Muller et al would not be optically active, which is confirmed by the entire disclosure of Muller et al which refers to the reduction of a "racemic" α-phenylalkylamino propiophenone.

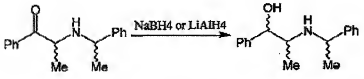
In Muller et al, the ketone compound 1 is a mixture of four isomers, which include diasteromers and two pairs of enantiomers. Applicants illustrate this with respect to the ketone compound 1b.



The mixture of four aminoketone isomers in Muller et al is not optically active. Muller et al nowhere disclose or suggest isolating an optically active compound from their mixture of four aminoketone isomers. Muller et al disclose reducing the mixture to form an aminoalcohol, as set forth in the next section of Muller et al.

(2) Synthesis of 2-Phenylalkylamino-l-phenylpropanol

Thus, Muller et al disclose, at page 451, line 23+ that 2-phenylalkylamino-l-phenylpropanol is obtained by reducing the AP-Derivative (compound 1) in the presence of a reducing agent such as $NaBH_4$ or $LiAlH_4$. Applicants illustrate this reaction as follows:



Accordingly, Muller et al do not disclose a process for producing an optically active α-substituted aminoketone of formula (4) or an optically active α-substituted aminoketone salt of formula (5), and do not disclose or suggest the use of an optically active amine represented by formula (2) of the present claims.

In general, Muller et al do not disclose a process for producing an optically active α-substituted aminoketone of formula (3), and do not disclose the step of isolating an optically active compound from a mixture of diastereomers.

Thus, Muller et al differ from the present invention as set forth in claim 1 because Muller et al do not disclose or suggest a process for producing an optically active α-substituted aminoketone represented by formula (4) or the optically active α-substituted aminoketone salt of formula (5), do not disclose or suggest employing an optically active amine represented by formula (2) to produce a mixture of diastereomers of an optically active α-substituted aminoketone of formula (3), and do not disclose or suggest isolating one diastereomer from a mixture of diastereomers of an optically active α-substituted aminoketone represented by formula (3) after optionally yielding salts of the diastereomers with an acid.

Further, with respect to claim 9, Muller et al do not disclose or suggest the use of methanesulfonic acid.

Similarly, with respect to claim 71, Muller et al do not disclose or suggest a process for producing an optically active α-substituted aminoketone represented by formula (4) or an optically active α-substituted aminoketone salt of formula (5), and do not disclose or suggest isolating one diastereomer from a mixture of diastereomers of an optically active α-substituted aminoketone represented by formula (3) after optionally yielding salts of the diastereomers with an acid.

The use of a racemic amine in Muller et al does not produce compounds that would be optically active. As discussed above, in Muller et al, the final aminoketone product is a mixture of four isomers which includes diasteriomers and two pairs of enantiomers. This mixture of

Muller et al is not optically active and is not separated into optically active aminoketones by Muller et al.

There simply is no disclosure or suggestion in the cited prior art to employ an optically active amine represented by formula (2) to produce a mixture of diastereomers of an optically active α-substituted aminoketone of formula (3). In the absence of a teaching or suggestion of such a step in Muller et al or elsewhere, Muller et al do not render obvious the recitations of claim 1.

At the interview, the Examiner initially took the position that Muller et al teach a process of preparing stereoisomers of the aminoketone in view of the disclosure at page 451, lines 11-21 of Muller et al. As explained above, and as discussed at the interview, Muller et al nowhere disclose a process for preparing stereoisomers of an aminoketone. The disclosure at page 451, lines 11-21, relates to the formation of a racemic mixture of an aminoketone.

Applicants' undersigned counsel explained that the present invention, as set forth in claim 1, employs an optically active amine to produce a mixture of diastereomers of an optically active α-substituted aminoketone of formula (3).

Applicants' undersigned counsel pointed out that the cited prior art does not disclose or suggest a reaction step in which an a ketone is reacted with an optically active amine as in the process of the present invention, and that in the absence of such a teaching, the prior art does not suggest the method of claim 1.

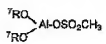
At the interview, the Examiner acknowledged that the prior art does not disclose or suggest the use of an optically active amine as set forth in claim 1.

At the interview, the Examiner initially took the position that Muller et al refer to stereoisomers at page 451, line 6 of the article. At the interview, applicants' undersigned counsel explained that the reference to stereoisomers in Muller et al does not relate to stereoisomers of the aminoketone, but instead relate to stereoisomers of the aminoalcohol which is produced in Muller et al from the racemic aminoketone.

Further, at the interview, the Examiner referred to the use of methanesulfonic acid as being old in the art, as shown by Matsuo et al. At the interview, applicants' undersigned counsel pointed out that the Matsuo et al patent does not disclose the use of methanesulfonic acid in the production of aminoketones, but rather discloses a process for preparing an aminoalcohol, starting from an already produced aminoketone.

Thus, as explained in the Amendment Under 37 C.F.R. § 1.116 filed on October 29, 2007, Matsuo at al nowhere disclose or suggest a process of preparing an optically active aminoketone by use of methanesulfonic acid, and nowhere disclose or suggest a process of separating aminoketone diastereomers by methanesulfonic acid. Instead, Matsuo et al disclose a process for preparing an aminoalcohol, starting from an already produced aminoketone.

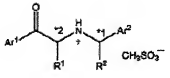
Thus, Matsuo et al relate to preparing an aminoalcohol from an aminoketone, and methanesulfonic acid is used to prepare the aminoalcohol, and is not used to prepare an aminoketone. In Matsuo et al, methanesulfonic acid reacts with an aluminum compound and the following reducing agent is formed.



This reducing agent in Matsuo et al is then reacted with an aminoketone compound of general formula (1) of Matsuo et al to form an aminoalcohol of general formula (7) of Matsuo et al.

Thus, Matsuo et al disclose the use of methanesulfonic acid as a reactive ingredient which reacts with an organoaluminum compound of general formula (4) of Matsuo et al and an alcohol compound of general formula (6) of Matsuo et al to form a reducing agent. This reducing agent is then reacted with an aminoketone compound of general formula (1) of Matsuo et al to form an aminoalcohol of general formula (7) of Matsuo et al.

On the other hand, in the present invention, when methanesulfonic acid is employed, it reacts with an aminoketone compound represented by the general formula (3) and the following salt is formed.



Thus, in the present invention, the acid is optionally employed to isolate one diastereomer from a mixture of diastereomers of an optically active aminoketone by preparing a salt of the compound of formula (3) with an acid.

Matsuo et al do not disclose the use of an acid to prepare a salt of a compound of formula (3) to isolate a diastereomer, but rather disclose the use of an acid to form a reducing agent, which is then reacted with an already prepare aminoketone starting compound. In Matsuo et al, there is no isolation of an optically active aminoketone compound from a mixture of diastereomers. Accordingly, Matsuo et al do not supply the deficiencies of Muller et al.

Accordingly, even if Muller et al and Matsuo et al are combined, they do not lead to the present invention.

In Muller at al, there is no disclosure of separating aminoketone diastereomers, as above-mentioned. Similarly, there is no disclosure in Matsuo et al that would lead one of ordinary skill in the art to separating the aminoketone mixture of Muller et al and isolating one diastereomer from a mixture of two diastereomers of an optically active α-substituted aminoketone represented by formula (3).

In view of the above, applicants submit that Muller et al and Matsuo et al do not disclose or render obvious the subject matter of the above claims and, accordingly, request withdrawal of this rejection.

Claims 47-54 have been rejected under 35 U.S.C. § 103(a) as obvious over Muller et al, optionally in view of Matsuo et al.

At the interview, the Examiner referred to the recently-decided case of *Aventis Pharma Deutschland GmbH v. Lupin Ltd.*, 499 F.3d 1293, 84 USPQ2d 1197 (Fed. Cir. 2007), as possibly being relevant to these claims.

As discussed above, these claims have been canceled. Accordingly, this rejection is moot.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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Date: February 27, 2008